

## CLAIMS

1. Process for the electrogalvanic coating of metal items through a sequence of chemical or electrochemical treatment phases, characterized in that  
5 each of said treatment phases includes the following steps:
  - a) placing the items to be treated into a centrifuge;
  - b) delivering a treatment liquid to the centrifuge;
  - c) carrying out the treatment;
  - d) draining said treatment liquid from the centrifuge;
  - 10 e) carrying out a centrifugation of the items to recover said liquid.
2. Process according to claim 1, characterized in that it further includes the steps of inclining the centrifuge, preferably at about 45°, prior to carrying out the treatment and of returning the centrifuge to the vertical position prior to the centrifugation.
- 15 3. Process according to claim 1 or 2, characterized in that the treatment liquid is washing water and in that the first step of placement of the items in the centrifuge consists in leaving the items in the centrifuge where the preceding treatment has been carried out.
4. Process according to one of the preceding claims, characterized in that  
20 a plurality of chemical or electrochemical treatments and the relevant subsequent washings are carried out sequentially in the same centrifuge.
5. Apparatus for the electrogalvanic coating of metal items, characterized in that it includes a vertical axis centrifuge (F) with a removable drum (D) open at the top, means for the hydraulic connection to delivery (G) and drain (H) pipes for  
25 treatment liquids to be delivered to and drained from said centrifuge (F), as well as one or more tanks (T, T') for storage and recovery of said treatment liquids with relevant valve and pump means, and possibly a current rectifier (R) electrically connected to the centrifuge (F).
6. Apparatus according to claim 5, characterized in that it further  
30 includes means (M) to incline the centrifuge (F), preferably at about 45°, around a horizontal axis (X).

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7. Apparatus according to claim 5 or 6, characterized in that the delivery (G) and drain (H) pipes converge into a hydraulic connector (S) extending from the bottom of the centrifuge (S).

8. Apparatus according to one of claim 5 to 7, characterized in that the  
5 delivery pipe (G) comes from an upper tank (T) located on a scaffolding (K) at an elevated position with respect to the centrifuge (F), whereas the drain pipe (H) leads to a lower tank (T') located lower than the centrifuge (F) under said scaffolding (K).

9. Plant for the electrogalvanic coating of metal items, characterized in  
10 that it includes a sequence of aligned stations (A) consisting of apparatuses according to one of claims 5 to 8, with an automatic loading station (L) at the inlet and an automatic unloading station (U) at the outlet, the latter being preceded by two drying stations (A').

10. Plant according to claim 9, characterized in that it further includes  
15 carriages (C) that run on rails (B) extending above the stations along the whole length of the plant, said carriages (C) being provided with means for moving the drums (D) from one station to another.